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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,635	12/03/2001	Soon Bae Yang	P-0300	7422
34610	7590	10/01/2003	EXAMINER	
FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			MCCLLOUD, RENATA D	
			ART UNIT	PAPER NUMBER
			2837	
DATE MAILED: 10/01/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/998,635

Applicant(s)

YANG ET AL

Examiner

Renata McCloud

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-18 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 19-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Response to Amendment*

1. In response to the amendment filed 16 June 2003, paper number 5, the following has occurred:

(a) Claims 1,5,7,9,11 and 17 have been amended.

(b) Claims 19-21 have been added. Now claims 1-21 are presented for examination.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalupa et al (U.S. Patent 6,366,865) in view of Veltman (U.S. Patent 6,552,509).

**Claim 1:** Chalupa et al teach a method of controlling an operation of a motor, comprising the steps of: detecting a phase voltage value and a phase current value applied to the motor between forward and backward revolution sections of the motor (e.g. Col. 5:34-37), calculating a phase resistance value based on the detected phase voltage and current values (e.g. Col. 5: 37-53); and controlling the operation of the

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motor by controlling a voltage applied to the motor in accordance with the calculated phase resistance value (e.g. Col. 5:54-65). Chalupa et al do not teach using an operational frequency to calculate a phase resistance. Veltman teaches using an operational frequency to calculate a phase resistance (e.g. Col. 7:44-60).

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to modify the apparatus taught by Chalupa et al to an operational frequency to calculate phase resistance. The advantage of this would be the ability to determine current ripple and flux ripple.

**Claim 2:** Chalupa et al and Veltman teach the limitations of claim 1. Referring to claim 2, Chalupa et al teach the motor is a sensorless brushless direct current motor (e.g. Col. 2:5-11).

**Claim 3:** Chalupa et al and Veltman teach the limitations of claim 1. Referring to claim 3, Chalupa et al teach the motor is used for a washing machine (e.g. Col. 1: 11-18).

**Claim 4:** Chalupa et al and Veltman teach the limitations of claim 1. Referring to claim 4, Chalupa et al teach the voltage applied to the motor is proportional to a size of the phase resistance value (e.g. Col. 5:54-65).

**Claim 5:** Chalupa et al and Veltman teach the limitations of claim 1. Referring to claim 5, Chalupa et al teach calculating the phase resistance value at predetermined intervals; and controlling the voltage applied to the motor based on an average value of the calculated phase resistance values (e.g. Fig. 3; Col. 7:10-28).

**Claim 6:** Chalupa et al and Veltman teach the limitations of claim 1. Referring to claim 6, Chalupa et al teach the phase resistance value is calculated by dividing the phase voltage by the phase current when an operational frequency of the motor approaches '0' (e.g. Col 3: 5-15; Fig. 3).

**Claim 7:** Chalupa et al teach a method of controlling an operation of a motor, comprising the steps of: detecting a phase voltage value and a phase current value applied to the motor on a middle section between forward and backward revolution sections of a sensorless brushless direct current motor (e.g. Col. 5:34-37; Col. 2:5-11); calculating a phase resistance value based on the detected phase voltage and current values (e.g. Col. 5:54-65), and controlling the operation of the motor by controlling a voltage applied to the motor in accordance with the calculated phase resistance value (e.g. Col. 5:54-65). Chalupa et al do not teach using an operational frequency to calculate a phase resistance. Veltman teaches using an operational frequency to calculate a phase resistance (e.g. Col. 7:44-60).

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to modify the apparatus taught by Chalupa et al to an operational frequency to calculate phase resistance. The advantage of this would be the ability to determine current ripple and flux ripple.

**Claim 8:** Chalupa et al and Veltman teach the limitations of claim 7. Referring to claim 8, Chalupa et al teach the voltage applied to the motor is proportional to a size of the phase resistance value (e.g. Col. 5:54-65).

**Claim 9:** Chalupa et al and Veltman teach the limitations of claim 7. Referring to claim 9, Chalupa et al teach calculating the phase resistance value every predetermined time when the motor stops (e.g. Fig. 3; Col. 7:10-28), and controlling the voltage applied to the motor using an average value of the calculated phase resistance values (e.g. Fig. 3; Col. 7:10-28).

**Claim 10:** Chalupa et al and Veltman teach the limitations of claim 7. Referring to claim 10, Chalupa et al teach the phase resistance value is calculated by dividing the phase voltage by the phase current when an operational frequency of the motor approaches '0' (e.g. Col 3:5-15; Fig. 3).

**Claims 19 and 21:** Chalupa et al and Veltman teach the limitations of claims 5 and 9. Referring to claims 19 and 21, Chalupa et al teach the resistance is calculated when the motor stops (e.g. Fig. 3; Col. 7: 10-28).

**Claim 20:** Chalupa et al and Veltman teach the limitations of claim 7. Referring to claim 20, Chalupa et al teach the motor is built inside a washing machine (e.g. Col. 1: 11-18).

#### ***Allowable Subject Matter***

4. Claim 11-18 are allowed.

#### ***Response to Arguments***

- 5 Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are: Schmidt et al (U.S. 4,884,023).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (703) 308-1763. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on (703) 308-3370. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Renata McCloud  
Examiner  
Art Unit 2837

RDM



**ROBERT NAPPI**  
**SUPERVISORY PATENT EXAMINER**